



SEQUENCE LISTING

<110> Reski, Ralf
Decker, Eva
Justine Kiessling

<120> FtsZ-POLYPEPTIDES AS A TARGET FOR HERBICIDAL COMPOUNDS

<130> MBP-017XX

<140> US 10/538,530

<141> 2005-06-10

<150> PCT/EP2003/014162

<151> 2003-12-12

<150> US 60/433,556

<151> 2002-12-13

<150> US 60/438,466

<151> 2003-01-07

<160> 5

<170> PatentIn version 3.1

<210> 1

<211> 1335

<212> DNA

<213> *Physcomitrella patens*

<400> 1

```
atgatgagct ccatggtgag gtttagctcg agcccgtgct ctttcaccgg gtcgttgtgc      60
tcaacatcgc cgcagtcgat gcaccccatg agctctgtcg cggcaaaggt gacgaggcaa      120
tgtgggtgct tgagagcggg gaataagctg gataaggacc aatttgtggg tgatgggaaa      180
ccacttatgc atcaacagac gcggggatgg agtcagggggc gggagagggtg tcacgcaggg      240
aggtctgtgg tgatggccag tatgagtggc gccaaagatca aggtcattgg tgtaggcggc      300
gggggcaaca atgctgtgaa ccgcatgatt gggagcggca ttcagggtgt tgatttttgg      360
gccatcaaca cagatgttca agctttgcag aaatcacaag ccgaacatcg cgttcaaadc      420
ggcgaagctt tgacccgagg acttggtact ggtggaaagc cattccttgg agaacaagca      480
gcagaggaat cgatagaaat cattgcacag gcagtggtag atgctgatct tgtcttcatt      540
actgcgggca tgggtggtgg aacggggtct ggggctgccc cggtcgttgc ccgtgtggcc      600
aaagaggcag ggcaactcac tgttggtggt gtcacttatc cgtttacgtt tgagggccgt      660
cggagaagcc agcaggcagt ggaggcaata gagaatctgc ggaagtctgt cgacagcttt      720
attgtcattc ctaatgaccg tctactcgat gtctccggag ataaaactcc tcttcaggaa      780
gcattttctc tagccgacga tgttcttagg caggaggttc aaggcatttc agacatcatc      840
acaacgccag gtcttgtgaa tgttgatttt gcagatgtta gagctgtaat gagtaactca      900
ggtacagcca tgcttggcgt tggctcctct agtggcaaga atcgtgctga ggaggccgct      960
gttcaagctg cttcagcccc tcttattgaa cgctctattg aacaagcaac tggcattgta     1020
tacaacatca ctggtggacc ggacctcaca ttgcaggaag tcaacaccgt gtctgagatt     1080
gtaacagggt tagctgaccc ctgagcta atcatttttg gagcggtagt ggatgacaaa     1140
```

tatacaggtg	aaatccatgt	aacgattatt	gccacggggt	tctctcacag	ttttcagaaa	1200
tcactagtgg	acccaaacgt	ttctaggtcg	gagaggcagg	acgccccgag	taatgcactc	1260
gagaaacctt	ggaagcaacc	aactcccacc	tcatcaagat	ttcgtcaagg	ccttaatagc	1320
aaggggtttt	tgtag					1335

<210> 2
 <211> 1473
 <212> DNA
 <213> *Physcomitrella patens*

<400> 2						
atgatcacgt	gtagggtttg	ggttggtttg	gggccgggtga	gcccttcttt	gattcttctg	60
ccctcgaaga	gtaacggaga	atgcgtccta	agtgcagaa	aagctgattg	gggattactg	120
agccaagtgc	aatgccaacg	ctttcgatgt	ctatcttcag	aatataaggg	tcataatctt	180
aaacttagaa	gacgtagccg	tgtctcagct	tccaacagag	aaaacggtag	tttaaattggg	240
cgtttccagg	aatcactgag	tcaagagaat	gggtatccgg	caccaactga	agggactgat	300
cctcacactt	tctccacggc	gatggactcc	ttagctatta	aagcagagga	agcttacaat	360
gacgtacagg	attcttttgc	caagagtagt	aaacaacgga	gcttatctgg	ctgcgcttct	420
atcaaagtgt	tcggtgtcgg	gggtggtgga	tgcaatgcgg	tagacgaaat	ggtgaggtca	480
gaactattga	atggtgagtt	ctgggccgtc	aatactgaca	aacaagcatt	gaacaagtcg	540
ctggctccca	ataaaaattca	aattggacag	gacacgacag	ccggccgcgg	tgtaggtgga	600
agaagtgcaa	ccggtgagga	agcagctaca	gagtcattgg	cggagctttc	gatggcactt	660
gaaggtgccg	atttagtctt	catcgcctcc	ggtatgggtg	gcggtactgg	ttcaggagca	720
gctcctgtgg	tggctcggtt	ggcgaaggct	atgggagcgt	taacgattgg	catagtaact	780
gaacctttca	catttgaagg	gttcacccga	gctcgacaag	ctaggaaagc	cattgaggac	840
atgcgccatg	cggctgacac	tgtggttgta	gttccaaattg	atcggttgct	ccagactgta	900
gcacctgaca	catctatgct	ggaggctttc	catcttgacg	atgacgtctt	gcggcagggg	960
gtgcaaggaa	tttcagacat	catcacgata	cccgggctag	tcaacgtcga	ctttgcggat	1020
gtgaaagcta	tcatgtcaaa	tgtagggagt	gcaatgttgg	gaatcggcgc	tggttttggg	1080
aagaaccgtg	ctgaggaggt	ggcacgggtca	gccatcatgt	ctcctctact	ccgctccgtc	1140
tcgagaccca	tgggtattgt	gtacaatgtg	acagggtggga	gcgacctaac	tcttcacgag	1200
gtcaacatcg	ctgccgaaat	tgttcatgac	atggctgatc	caaacgcaaa	tgttatcttt	1260
ggggcggtca	ttgatgagag	ctttaagggg	atgatacgta	tgactgtcat	tgcaactgga	1320
tttagagagc	ctggagagga	gaaggctcgtt	ggtagtgttc	gaactgtaga	cgatgatata	1380
ttctactggg	aacagaataa	gaataggtcc	gaccttggca	aagtgccgga	cgttttgcga	1440
agaaaagatc	gaaggcgtgg	cagtggcagg	taa			1473

<210> 3
 <211> 444

<212> PRT
<213> Physcomitrella patens

<400> 3
Met Met Ser Ser Met Val Arg Phe Ser Ser Ser Pro Cys Ser Phe Thr
1 5 10 15

Gly Ser Leu Cys Ser Thr Ser Pro Gln Ser Met His Pro Met Ser Ser
20 25 30

Val Ala Ala Lys Val Thr Arg Gln Cys Gly Cys Leu Arg Ala Gly Asn
35 40 45

Lys Leu Asp Lys Asp Gln Phe Val Gly Asp Gly Lys Pro Leu Met His
50 55 60

Gln Gln Thr Arg Gly Trp Ser Gln Gly Arg Glu Arg Cys His Ala Gly
65 70 75 80

Arg Ser Val Val Met Ala Ser Met Ser Gly Ala Lys Ile Lys Val Ile
85 90 95

Gly Val Gly Gly Gly Gly Asn Asn Ala Val Asn Arg Met Ile Gly Ser
100 105 110

Gly Ile Gln Gly Val Asp Phe Trp Ala Ile Asn Thr Asp Val Gln Ala
115 120 125

Leu Gln Lys Ser Gln Ala Glu His Arg Val Gln Ile Gly Glu Ala Leu
130 135 140

Thr Arg Gly Leu Gly Thr Gly Gly Lys Pro Phe Leu Gly Glu Gln Ala
145 150 155 160

Ala Glu Glu Ser Ile Glu Ile Ile Ala Gln Ala Val Val Asp Ala Asp
165 170 175

Leu Val Phe Ile Thr Ala Gly Met Gly Gly Gly Thr Gly Ser Gly Ala
180 185 190

Ala Pro Val Val Ala Arg Val Ala Lys Glu Ala Gly Gln Leu Thr Val
195 200 205

Gly Val Val Thr Tyr Pro Phe Thr Phe Glu Gly Arg Arg Arg Ser Gln
210 215 220

Gln Ala Val Glu Ala Ile Glu Asn Leu Arg Lys Ser Val Asp Ser Leu
225 230 235 240

Ile Val Ile Pro Asn Asp Arg Leu Leu Asp Val Ser Gly Asp Lys Thr
245 250 255

Pro Leu Gln Glu Ala Phe Ser Leu Ala Asp Asp Val Leu Arg Gln Gly
Page 3

260 265 270
 Val Gln Gly Ile Ser Asp Ile Ile Thr Thr Pro Gly Leu Val Asn Val
 275 280 285
 Asp Phe Ala Asp Val Arg Ala Val Met Ser Asn Ser Gly Thr Ala Met
 290 295 300
 Leu Gly Val Gly Ser Ser Ser Gly Lys Asn Arg Ala Glu Glu Ala Ala
 305 310 315 320
 Val Gln Ala Ala Ser Ala Pro Leu Ile Glu Arg Ser Ile Glu Gln Ala
 325 330 335
 Thr Gly Ile Val Tyr Asn Ile Thr Gly Gly Pro Asp Leu Thr Leu Gln
 340 345 350
 Glu Val Asn Thr Val Ser Glu Ile Val Thr Gly Leu Ala Asp Pro Ser
 355 360 365
 Ala Asn Ile Ile Phe Gly Ala Val Val Asp Asp Lys Tyr Thr Gly Glu
 370 375 380
 Ile His Val Thr Ile Ile Ala Thr Gly Phe Ser His Ser Phe Gln Lys
 385 390 395 400
 Ser Leu Val Asp Pro Asn Val Ser Arg Ser Glu Arg Gln Asp Ala Pro
 405 410 415
 Ser Asn Ala Leu Glu Lys Pro Trp Lys Gln Pro Thr Pro Thr Ser Ser
 420 425 430
 Arg Phe Arg Gln Gly Leu Asn Ser Lys Gly Phe Leu
 435 440
 <210> 4
 <211> 490
 <212> PRT
 <213> Physcomitrella patens
 <400> 4
 Met Ile Thr Cys Arg Val Trp Val Gly Leu Gly Pro Val Ser Pro Ser
 1 5 10 15
 Leu Ile Leu Leu Pro Ser Lys Ser Asn Gly Glu Cys Val Leu Ser Ala
 20 25 30
 Arg Lys Ala Asp Trp Gly Leu Leu Ser Gln Val Gln Cys Gln Arg Phe
 35 40 45
 Arg Cys Leu Ser Ser Glu Tyr Lys Gly His Asn Leu Lys Leu Arg Arg
 50 55 60

Arg Ser Arg Val Ser Ala Ser Asn Arg Glu Asn Gly Ser Leu Asn Gly
65 70 75 80

Arg Phe Gln Glu Ser Leu Ser Gln Glu Asn Gly Tyr Pro Ala Pro Thr
85 90 95

Glu Gly Thr Asp Pro His Thr Phe Ser Thr Ala Met Asp Ser Leu Ala
100 105 110

Ile Lys Ala Glu Glu Ala Tyr Asn Asp Val Gln Asp Ser Phe Ala Lys
115 120 125

Ser Ser Lys Gln Arg Ser Leu Ser Gly Cys Ala Ser Ile Lys Val Phe
130 135 140

Gly Val Gly Gly Gly Gly Cys Asn Ala Val Asp Glu Met Val Arg Ser
145 150 155 160

Glu Leu Leu Asn Val Glu Phe Trp Ala Val Asn Thr Asp Lys Gln Ala
165 170 175

Leu Asn Lys Ser Leu Ala Pro Asn Lys Ile Gln Ile Gly Gln Asp Thr
180 185 190

Thr Ala Gly Arg Gly Ala Gly Gly Arg Ser Ala Thr Gly Glu Glu Ala
195 200 205

Ala Thr Glu Ser Leu Ala Glu Leu Ser Met Ala Leu Glu Gly Ala Asp
210 215 220

Leu Val Phe Ile Ala Ser Gly Met Gly Gly Gly Thr Gly Ser Gly Ala
225 230 235 240

Ala Pro Val Val Ala Arg Leu Ala Lys Ala Met Gly Ala Leu Thr Ile
245 250 255

Gly Ile Val Thr Glu Pro Phe Thr Phe Glu Gly Phe Thr Arg Ala Arg
260 265 270

Gln Ala Arg Lys Ala Ile Glu Asp Met Arg His Ala Ala Asp Thr Val
275 280 285

Val Val Val Pro Asn Asp Arg Leu Leu Gln Thr Val Ala Pro Asp Thr
290 295 300

Ser Met Leu Glu Ala Phe His Leu Ala Asp Asp Val Leu Arg Gln Gly
305 310 315 320

Val Gln Gly Ile Ser Asp Ile Ile Thr Ile Pro Gly Leu Val Asn Val
325 330 335

Asp Phe Ala Asp Val Lys Ala Ile Met Ser Asn Ala Gly Ser Ala Met
Page 5

340 345 350
 Leu Gly Ile Ala Leu Val Leu Gly Lys Asn Arg Ala Glu Glu Val Ala
 355 360 365
 Arg Ser Ala Ile Met Ser Pro Leu Leu Arg Ser Val Ser Arg Pro Met
 370 375 380
 Gly Ile Val Tyr Asn Val Thr Gly Gly Ser Asp Leu Thr Leu His Glu
 385 390 395 400
 Val Asn Ile Ala Ala Glu Ile Val His Asp Met Ala Asp Pro Asn Ala
 405 410 415
 Asn Val Ile Phe Gly Ala Val Ile Asp Glu Ser Phe Lys Gly Met Ile
 420 425 430
 Arg Met Thr Val Ile Ala Thr Gly Phe Arg Glu Pro Gly Glu Glu Lys
 435 440 445
 Val Val Gly Ser Val Arg Thr Val Asp Asp Asp Ile Phe Tyr Trp Glu
 450 455 460
 Gln Asn Lys Asn Arg Ser Asp Leu Gly Lys Val Pro Asp Val Leu Arg
 465 470 475 480
 Arg Lys Asp Arg Arg Arg Gly Ser Gly Arg
 485 490

<210> 5
 <211> 383
 <212> PRT
 <213> *Physcomitrella patens*

<400> 5
 Met Asp Ser Leu Ala Ile Lys Ala Glu Glu Ala Tyr Asn Asp Val Gln
 1 5 10 15
 Asp Ser Phe Ala Lys Ser Ser Lys Gln Arg Ser Leu Ser Gly Cys Ala
 20 25 30
 Ser Ile Lys Val Phe Gly Val Gly Gly Gly Gly Cys Asn Ala Val Asp
 35 40 45
 Glu Met Val Arg Ser Glu Leu Leu Asn Val Glu Phe Trp Ala Val Asn
 50 55 60
 Thr Asp Lys Gln Ala Leu Asn Lys Ser Leu Ala Pro Asn Lys Ile Gln
 65 70 75 80
 Ile Gly Gln Asp Thr Thr Ala Gly Arg Gly Ala Gly Gly Arg Ser Ala
 85 90 95

Thr Gly Glu Glu Ala Ala Thr Glu Ser Leu Ala Glu Leu Ser Met Ala
 100 105 110
 Leu Glu Gly Ala Asp Leu Val Phe Ile Ala Ser Gly Met Gly Gly Gly
 115 120 125
 Thr Gly Ser Gly Ala Ala Pro Val Val Ala Arg Leu Ala Lys Ala Met
 130 135 140
 Gly Ala Leu Thr Ile Gly Ile Val Thr Glu Pro Phe Thr Phe Glu Gly
 145 150 155 160
 Phe Thr Arg Ala Arg Gln Ala Arg Lys Ala Ile Glu Asp Met Arg His
 165 170 175
 Ala Ala Asp Thr Val Val Val Val Pro Asn Asp Arg Leu Leu Gln Thr
 180 185 190
 Val Ala Pro Asp Thr Ser Met Leu Glu Ala Phe His Leu Ala Asp Asp
 195 200 205
 Val Leu Arg Gln Gly Val Gln Gly Ile Ser Asp Ile Ile Thr Ile Pro
 210 215 220
 Gly Leu Val Asn Val Asp Phe Ala Asp Val Lys Ala Ile Met Ser Asn
 225 230 235 240
 Ala Gly Ser Ala Met Leu Gly Ile Ala Leu Val Leu Gly Lys Asn Arg
 245 250 255
 Ala Glu Glu Val Ala Arg Ser Ala Ile Met Ser Pro Leu Leu Arg Ser
 260 265 270
 Val Ser Arg Pro Met Gly Ile Val Tyr Asn Val Thr Gly Gly Ser Asp
 275 280 285
 Leu Thr Leu His Glu Val Asn Ile Ala Ala Glu Ile Val His Asp Met
 290 295 300
 Ala Asp Pro Asn Ala Asn Val Ile Phe Gly Ala Val Ile Asp Glu Ser
 305 310 315 320
 Phe Lys Gly Met Ile Arg Met Thr Val Ile Ala Thr Gly Phe Arg Glu
 325 330 335
 Pro Gly Glu Glu Lys Val Val Gly Ser Val Arg Thr Val Asp Asp Asp
 340 345 350
 Ile Phe Tyr Trp Glu Gln Asn Lys Asn Arg Ser Asp Leu Gly Lys Val
 355 360 365
 Pro Asp Val Leu Arg Arg Lys Asp Arg Arg Arg Gly Ser Gly Arg

370

375

380